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Dear Reader,

“To NPE or not to NPE, that is the question.” Recently, the U.S. plastics media was very much pre-occupied with this question. Some exhibitors were threatening to cancel their participation at NPE and a few select ones did so indeed. For a short amount of time the podium belonged to those who noisily announced their decision and probably hoped other exhibitors would follow them. Bill Carteaux, President of the SPI and the organization responsible for the NPE show, was not to be envied given this situation.

It stood to reason that the announced cancellations could draw a mass exodus of exhibitors. In the end just a few niche players decided not to participate for cost reasons. The show will exhibit its usual high level of quality and allow visitors to fully inform themselves about new developments leading the machine sector to higher productivity and greater efficiency. WITTMANN is a leading force here. At NPE 2009 we are displaying complete work cells to demonstrate our competence as a full line supplier. The display is complemented with single units from all product areas, including three new market introductions.

In one of the work cells we are presenting a new high-speed toggle machine combined with a WITTMANN IML system. A BATTENFELD TM Xpress 270/1350 and the respective label handling automation will be producing 750 ml rectangular PP containers with butterfly labels in a 4.7 s cycle time. A further highlight is the BATTENFELD HM 240/1330H/210S multi-component machine with the insider solution highlighting the seamless integration of machine and automation. Lastly, in the area of the Microsystems, we are demonstrating a Microsystem 50 molding machine producing POM gears for insulin pumps.

Market introductions are among robots, temperature controllers and gravimetric blenders. We are demonstrating a W823D robot with 2 vertical arms for stack molds or, with a subarm, for 3-plate molds. The new TEMPRO direct C120 [250] temperature controller with up to 250 l/min (65 gpm) of water flow and direct cooling, has been developed specifically for the North American market. The addition to the line of blenders is the new GMX 34V with RTLS technology (3 kg/6.6 lb. batch size).

The decision to participate in NPE 2009 has not been an easy one for any exhibitor. However, our industry relies on personal contact. Multiple pre-announcements of our customers promise an interesting and busy show. And this is exactly our sense. I am looking forward to your visit to our booth S42000.

Sincerely, Michael Wittmann
The acquisition of BATTENFELD in 2008 and the continued expansion of WITTMANN’s local support network have led to much greater capabilities in North America for the company. WITTMANN and BATTENFELD customers have seen the rapid change in the last year as the two organizations were merged into one with a widely increased scope of products and services available to them. These changes have already benefited customers in the U.S., Canada and Mexico, as facilities in all three countries now have the ability to offer complete systems integration locally.

David Preusse

Between the United States, the company’s 75,000 sq. ft. headquarters in Torrington, Connecticut has added test bays to perform mold tests with fully integrated machine, robot and auxiliary equipment. This further compliments their proven ability to integrate and test complete automation systems for a wide variety of applications (insert molding, cutlery, IML, medical automation cells, etc.) before shipment and a more efficient install at the customer’s plant. U.S. manufacturing of robots allows special strokes, configurations, options to be built locally in less time than competitors and for customization to the customer’s specific requirements. A significant inventory of dryers, temperature controllers, granulators (with video testing lab), loaders and robots allows commodity low price and delivery with our own products.

U.S. technical centers in Elgin, Illinois (16,000 sq. ft.) and Lake Forest, CA (5,000 sq. ft.) offer product demonstrations, spare parts and service, mold testing, system integration and operator and maintenance training for all product lines. In addition to the high level of local service and support, web services support is also offered for BATTENFELD machines equipped with this feature for our technicians to look from remote offices at the customer’s IMM and process, for troubleshooting assistance, to order parts and to request service. A web camera can be added to be virtually anywhere now in seconds with service support. WITTMANN BATTENFELD machines include this feature as part of each machine sale. Remote visualization program also allows networking of injection molding machines and PC workplaces where an internet connection is not available. Local web service support is now in place for U.S. customers and will add to a network of about 700 machines worldwide.

CT training offering has stepped up in a state-of-the-art classroom with robot teach pendants on each desk tied to a projector and live robot for more hands-on than traditional
robot schools and the larger class size drops training cost to a minimum. WITTMANN offers customers one day, 3 day basic, advanced programming for automation cells and maintenance training schools and will take the training to the customer’s site.

“WITTMANN BATTENFELD has the first true one stop shopping of primary processing and auxiliary equipment from one set of hands. Our customers have interest in turn-key, proven molding work cells, complete with the automation, pre-tested at our factory, with good documentation, service, parts and support. This allows a smoother customer site start-up and less finger pointing among suppliers. The in-mold-labeling cell complete with molding machine, mold, robot, automation, vision inspection as a cell is one example”, says David Preusse, President of WITTMANN BATTENFELD Inc. ⊡

The complete product range and proven capabilities have set WITTMANN Canada apart from the competition and positioned them as the leading supplier of automation and auxiliary equipment in Canada.

“With the addition of the BATTENFELD line of injection molding machines we can now supply the entire system of machine, robot automation and auxiliary equipment – fully integrated and tested locally at our facility – as one complete package. Already, we are seeing the tremendous benefit this brings to our customers”, states Rob Miller, President, WITTMANN Canada.

WITTMANN BATTENFELD Mexico S.A. de C.V. With an 8,000 sq. ft. facility in Querétaro Mexico, local sales and service office locations in Mexico City, Guadalajara, Monterrey, Cd. Juarez, Puebla and Chihuahua, WITTMANN BATTENFELD Mexico has equally expanded its product offering and scope with BATTENFELD injection molding machines and the ability to offer fully integrated solutions with in-house capacity and support.

Their coverage is further expanded with local representatives in Colombia, Central America and Chile. Their design, engineering and technical support capabilities are reflected in their ability to offer complete systems integration and training along with stocking a wide range of equipment and spare parts.

Their training room is equipped with a HM 150 ton machine with B6S control, WITTMANN robots and a wide cross-section of material handling equipment for conveying, drying and blending. It is also responsible for the global development of WITTMANN’s new GRAVIMAX blender series with RTLS (Real Time Live Scale) and highly accurate dispensing technology.

In addition, their ability to perform detailed plant audits allows them to provide customers with the complete status of existing system operation and make recommendations to reduce production costs. These recommendations may be as simple as modifying the system without any new equipment or could include upgrades to existing equipment or suggestions on new equipment and the related R.O.I. (return on investment) it offers, so as to easily justify improvements. Many processors expand their systems over time but often do not necessarily check with the OEM to see how it affects the overall system’s performance and continue to operate at a reduced capacity or with potential problems they are unaware of or where valuable material has been damaged or lost.

The complete product range and proven capabilities have set WITTMANN Canada apart from the competition and positioned them as the leading supplier of automation and auxiliary equipment in Canada.

With words of Carlos Chávez, President of WITTMANN BATTENFELD Mexico, “We are the only supplier in Latin America with the single source capability to offer our customers turnkey solutions for injection molding work cells. With WITTMANN BATTENFELD’s global positions, we are able to coordinate multi-national projects with our colleagues for our customer’s expansions into Latin America.” ⊡
Occasionally Kleiss Gears have designed and molded very small gears, which has presented unique application dependent challenges, but they were always able to successfully overcome the challenges. Recently however they were charged to design and manufacture a series of micro-gears for a major medical OEM.

This was quite a change from both the large and small gears with which they normally produce and required a reassessment of their manufacturing capabilities and processes.

Their existing fleet of molding machines are of a conventional design and have large screws that are capable of injecting large volumes of plastic.

However, when molding micro-gears with the very small quantities of plastic required, the process is like trying to pour a single drop from a gallon container – it can be done, but control is difficult.

Molding parts that weigh in the single-digit thousands of a gram range on a small conventional molding machine is simply too difficult. Transferring from injection to hold pressure is challenging on a conventional design mainly because the filling of a micro-part may translate into less than 0.25 mm movement of the injection screw. In this case, the check ring has not seated, which results in an uncontrolled and inconsistent process.

One solution to their dilemma would have been to inject more plastic into the mold so as to create one little gear and one great big runner. This is within the realm of possibility and they have molded gears in this fashion but it is certainly not cost effective or efficient. Additionally, using a conventional injection molding machine wastes a lot of material and results in a long molding cycle to assure that the large runner cools enough to be ejected from the mold. The gear itself may take only a few seconds to cool while the runner could easily take 10 times longer.

The characteristics of micro-gears means 100 DP or greater and having 100 teeth per inch of pitch diameter or more. The principle differences between micro-gears and their larger versions are as follows:

- The gears are very, very small, which means they have small intricate features that must be molded exquisitely.
- Micro-tooling is required for micro-gears.
- Very little material is required for the gears.

Another challenge is simply handling the part after molding. How do you grab a micro-gear, assure yourself that it has been molded correctly, and then put it in the right location? Very small parts can’t be just dropped into a bin as they act more like dust than pieces of plastic.

The next big challenge is quality inspection of micro-gears. Inspection or verification is absolutely necessary because the parts are so small. It is quite possible to mold for a significant length of time with none of the parts being useable because a small feature or passage is jammed. Since you can barely see the features of the part with the naked eye, there is no way to know if it’s being molded properly without some form of quality inspection or verification, which video cameras can provide.
“We have been quite successful molding miniature gears with our conventional injection molding presses”, says Rod Kleiss, the President of Kleiss Gears Company. “But we found that to produce true micro-gears on our current machines resulted in too much waste material to make the gears cost effective for our customers.”

After assessing the available technology, Kleiss Gears selected the all-electric fully-automated and integrated Microsystem 50 from WITTMANN BATTENFELD for its modular production cell technology – enabling injection molding, handling, quality inspection and packaging all within clean room conditions.

The Microsystem 50 efficiently molds gears weighing below 100 mg with almost no material waste and significantly less energy consumption compared to the conventional injection molding machines, allowing Kleiss Gears to pass this savings on to their customers.

The decision to partner with WITTMANN BATTENFELD, and use the Microsystem 50 to produce micro-gears was easily justified.

- Substantial material savings, up to 80%.
- The weight of the sprue can be more than 10 times less than that of conventional machines.
- Each shot, the entire inventory of metered melt is emptied into the cavity so material residence time is minimized.
- Rotary platen: Two B mold halves allow for part removal simultaneous to the injection process.
- Part removal via an integrated linear robot.
- Quality inspection via integrated vision system.
- Optional automated packaging modules are available after quality inspection.
- The molding area maintains a 100-class clean room rating using an integrated HEPA filter.
- Injection speeds are 350 times faster than on a conventional molding machine.
- The cycle time is generally less than half that of a conventional molding machine.
- All facets of the manufacturing process are integrated and realized inside the Microsystem 50.

The injection process

The injection unit is a four-stage design. A fixed-auger plasticizing screw feeds the material through a shut-off valve to a vertical 5 mm diameter metering plunger which precisely controls the back pressure by way of a pressure-monitoring load cell. A 5 mm diameter horizontal piston injects the material into the mold at speeds up to 760 mm/sec, braking to within ±2 cu. mm (by 250 mm/sec) from the mold parting line. The entire injection unit, like the machine, is all-electric and is closed loop servo controlled by WITTMANN BATTENFELD’s UNILOG B4 control system.

“We are proud to be the only gear molding company in the United States using this technology to produce micro-molded precision gears”, says Rod Kleiss. “And we are in the first scheduled production runs on our new Microsystem 50 for a major medical OEM.”

From left to right: Doug Felsenthal, Kleiss Gears Vice President; Eric Wiita, Engineer; Larry Merrifield, Molding Manager.

David Purcell is IMM Division Sales Manager at WITTMANN BATTENFELD Inc. in Torrington, USA.
The New TEMPRO direct C120 [250]*

At this year’s NPE show taking place June 22nd to 26th in Chicago, WITTMANN is introducing a new development in the field of temperature control units designed especially for the demands of U.S. customers. The TEMPRO direct C120 [250] temperature control unit is directly cooled to provide enormous cooling capacity equal to that of other competitive U.S. products.

Zdravko Gavran

WITTMANN has been present in the U.S. market for many years now and their focus on high-tech temperature control units and low-budget prices has led to their well earned success in the field of temperature control. The well established WITTMANN series of temperature control units – the TEMPRO basic and TEMPRO plus – are convincing by their functionality, their manufacturing quality and their excellent price/performance ratio. However, the time was ripe to introduce a totally new concept in temperature control units to even better meet the requirements of U.S. processors.

In Europe, temperature control units are designed for indirect heating/cooling to increase process security. However, in the U.S. the method of direct heating/cooling is more common as it offers certain advantages for larger molds such as using fewer units to achieve the desired effect.

Temperature control units with parallel piping are equipped with centrifugal pumps designed to provide high flow rates. However, the pumps must be adjusted for optimal performance specific to the individual application. As such, one disadvantage of centrifugal pumps is their lack of flexibility and the ability to use them for different molds quite limited. An incorrectly specified centrifugal pump can result in cavitation, causing the mechanical seal as well as the impeller to suffer serious damage. These considerations have all been taken into account when designing the new TEMPRO direct C120 [250]. The TEMPRO direct C120 [250] is produced as a single zone unit and consists of the following main components:

- Centrifugal pump.
- Heater.
- Heat exchanger (tank).
- Cooling valve.
- Pressure sensor.
- 2 pressure gauges.

The centrifugal pump

Mounting the centrifugal pump horizontally provides specific advantages in comparison to other devices offered by U.S. manufacturers. Horizontal orientation of the pump leads to better venting of the heating/cooling circuit and, as a result, provides constant cooling of the mechanical seal. Mounting the pump vertically produces a serious risk in that the air existing within the system can accumulate around the mechanical seal and thus, cause a pausing in the cooling process.

The mechanical seal could be damaged by overheating. Simply for this reason, it has become part of the sales strategy for U.S. temperature control unit manufacturers to supply a second mechanical seal as a spare.

The standard pump frame in the new WITTMANN TEMPRO direct C120 [250] is made of gray cast iron but is available, as an option, made of bronze. The shaft of the centrifugal pump, its locking ring, the mechanical seal, and the spline are all made of stainless steel. The pump’s impeller is made

*The North American model designation reflects degrees Fahrenheit and is known as TEMPRO direct C250.
of brass – thus, all parts for the mechanical seal are made exclusively of noncorrosive materials. If, at any time, it is necessary to change the seal, it can be performed easily by the operator. The entire electric enclosure of the TEMPRO direct C120 [250] can be pivoted to provide easy access to the pump so that it can be easily dismantled and the mechanical seal accessed.

The pump head and associated connectors remain within the tempering device, when changing the seal. This is the most convenient solution for the operator – and it is also a time saving one.

The rust peels off the inner surface, spreading throughout the heating water tank and cold water tank – the customer can revert to larger valves (¾” and 1”) to clean the mold. In addition, the deposits accumulate on the surface of the heater leading to further degradation of the heat transfer process. Eventually, this results in the destruction of the heater through corrosion or thermal overstressing. This is just another risk that is eliminated by the design of the WITTMANN TEMPRO direct C120 [250].

The cooling valve

The cooling valve of the TEMPRO direct C120 [250] consists of a diaphragm valve that is providing high flow rates – thus high cooling capacities. Each tempering unit is supplied with a ½” valve. Its flow rate is sufficient for the majority of applications. When the TEMPRO is used for applications with large demands – for example molds with more than 10 tons or calendering cylinders of a capacity of several hundred liters of water – the customer can revert to larger valves (¾” und 1”) to dissipate the heat that is produced in the process without any problem.

Application areas

The TEMPRO direct C120 [250] is best suited for a range of different applications: Injection molding, cooling of calendering cylinders, heating/cooling of water quenches with great volumes, temperature control of double-walled reaction containers such as those used in the pharmaceutical industry. For all these applications, the TEMPRO direct C120 [250] can provide the ideal combination of heating capacity, cooling capacity and pump capacity.

The high control accuracy of +/- 1°F and the use of high grade materials and components guarantee complete process safety. The new TEMPRO direct C120 [250] represents a new level of efficiency and quality for temperature control units in the North American market.

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The heater

The TEMPRO direct C120 [250] is equipped with a 12 kW heater as standard but an optional 24 kW heater is available. It is made of a noncorrosive and heat-resistant alloy consisting of nickel, iron, and chromium (INCOLOY 825). This material is acid-resistant and is not subject to stress cracks, crevice or pitting corrosion. The heating water tank and cold water tank are made of stainless steel (1.4301) – unlike the water tanks of U.S. manufacturers. The gray cast iron that is often used for water tanks in North America has a great disadvantage as it becomes heavily corroded when in contact with water. The rust peels off the inner surface, spreading throughout the entire heating/cooling circuit where it then accumulates. This then leads to plugging of the cooling channels and subsequently, an undesirable rise in mold temperature.

Very often the only remedy is to stop production in order to clean the mold. In addition, the deposits accumulate on the surface of the heater leading to further degradation of the heat transfer process.
The feeder is designed for the blending of up to 4 components with a total batch size of 1 kg and a material throughput of up to 80 kg (170 lbs.) per hour.

RTLS technology

On one hand, high precision blending is achieved using the newly developed valves and on the other hand by using the accepted WITTMANN RTLS technology (Real Time Live Scale).

RTLS is a unique 2-stage metering method achieving the most precise dispensing for batch-to-batch consistency and accuracy.

This is achieved using progressively smaller dispensing algorithms to approach the target weight. The first step (free flow) allows quick dispensing to near target weight – approximately 95%. The second step (fine pulsing) is the controlled...
high frequency dispensing precisely to target. Only one kind of standard high precision valve is needed for the various materials i.e. pellets, regrind and additives. Ensuring precise batch-to-batch accuracy with RTLS allows the operator to set the percentages exactly to the required minimum level.

However, competitive blending methods are constantly overdosing and underdosing which requires the minimum required level to be set higher to allow any underdosed batch to still meet the correct percentage. This results in over-dosing all other batches, sometimes even significantly, causing tremendous excess material usage. RTLS can pay for itself in an unrivaled short time.

**XLB control**

Simplicity, ease-of-use and high efficiency are the characteristics of the WITTMANN XLB blender control. The large touch screen allows the user to recall the cycle, total run and inventory reports. One XLB blender control panel can handle multiple gravimetric blenders to reduce the overall cost of controls. The WITTMANN XLB blender control offers many features including:

- Sturdy heavy-duty construction.
- Input of ingredient values in %.
- Metric or imperial units.
- Alphanumeric key pad.
- Display of operating conditions.
- 100 recipe storage on the local memory.
- Preset batch count.
- Multi-level password.

Furthermore the options of the XLB control include Ethernet connectivity compatible with central PCs, laptops and PDAs.

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**New Sales and Service Subsidiary in Bucharest, Romania**

WITTMANN continues to expand within the E.U. As of May 1st 2009, a sales and service subsidiary has opened in Bucharest, Romania. WITT-MANN BATTENFELD Srl. serves to strengthen the role of the WITTMANN group in the growing Romanian market.

WITTMANN has developed a considerable market there in recent years, both for injection molding machines and for auxiliary equipment. The new subsidiary’s General Manager, Bogdan Nestor, looks back on many years of experience in the plastics industry. Prior to being named to this post, Nestor worked for the Romanian sales and service distributor D&D Plastics.

As head of sales and marketing, he was responsible for the Romanian customers of Negri Bossi, Eurochiller and Dipre, among others.

“Romania has the greatest potential of all of the new E.U. states. This market entry is another step in our consistent expansion policy in Eastern Europe. The sales and service subsidiary in Bucharest positions us even closer to the market and within direct reach of our customers. This new subsidiary and our own service team will enable us to provide localized assistance to our customers – with strong service, short-term deliveries and full service support,” explains Dr. Werner Wittmann.

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Bogdan Nestor, General Manager of the new Romanian subsidiary WITTMANN BATTENFELD Srl. in Bucharest.
The story of ATM d.o.o. began in 1994 when Dragan Djordjevic, a video rental shop owner, felt there was an opportunity in the market for VHS boxes. At first an old injection molding machine was used to produce these boxes in Dragan’s garage. Working together with his brother Zoran the business grew in the first year and success came very soon after with a big order for the German market. “This order really launched our company and convinced us to explore new business”, says Dragan.

The company went through the Yugoslavian war without any interruption in production. “During this period our strategy was to be very innovative with customers’ requests in order to provide global service and produce packaging within the constraints of the political situation. We developed a business and a strong market position for chemical containers but we sensed the potential for plastic packaging in the food industry. We explored different manufacturing methods for standard and specialty packaging before purchasing 5 WITTMANN side entry in-mold labeling (IML) robots to provide just-in-time supply to the local market.” ATM d.o.o. increased its market share in the packaging business with rapid global development as a supplier of standard packaging and custom containers.

The Serbian market

Serbia is a growing market because consumer habits are moving from the traditional local green market to the supermarket very quickly. As in every country, consumers are using supermarkets more and more with all products under one roof and because they can pay by credit card rather than with cash as required in green markets. The food industry is developing a wider variety of easy-to-eat food with convenient containers offering a longer “Best before date”.

Packaging Leader in Serbia Grows with WITTMANN IML Equipment

PRIMEX, the WITTMANN BATTENFELD agent for Serbia, launched the production of 3 in-mold labeling (IML) side entry robots for ATM d.o.o. The collaboration between ATM d.o.o. and PRIMEX began 4 years ago with the purchase of a BATTENFELD TMS 2100/1330 injection molding machine for packaging products.

Denis Metral
The ATM requirements

Miri Jana Savski, sales representative of PRIMEX, says: “ATM d.o.o. selected 3 WITTMANN side entry robots based on their proven experience in IML. We had to ensure they could offer better production figures as compared to the existing competitor’s robots. The deal was made with the aim of reducing cycle times and having faster and lighter end-of-arm-tooling (EOAT) once again, as compared to the existing competitor’s robots.

We had to propose a better solution including easy access for maintenance and quick product changeovers. Michael Wittmann, General Manager, Wittmann Kunststoffgeräte GmbH, was in Serbia to conclude the deal with Dragan Djordjevic and guaranteed WITTMANN would provide the most flexible solutions.”

Michael Wittmann says, “With ATM we found a company actively developing its local and foreign market over 14 years. This family company is very dynamic with innovative packaging products and has grown by listening to its customers’ requirements.” From the WITTMANN IML Department ATM d.o.o. found cutting edge technology for the optimization of their cycle time and the highest reliability of the robots. Cycle time is a critical factor when looking at production costs and the WITTMANN label station makes the IML process more reliable with accurate label placement in the mold cavity. ATM d.o.o also appreciates the design of the IML automation with easy access for maintenance and simple solutions to place labels like dummy cores with their own vacuum circuit versus methods using suction cups. The innovative label station eliminates frequent production stoppages which are very costly for ATM d.o.o. “We have proven this solution reduces maintenance to optimize production time. We performed a complete analysis with the plant engineer Zeljko Stamatovic to enable more production time and improve the operating mode of each robot,” says Michael Wittmann.

A major problem with the existing competitor’s systems was the reliability of the label magazine and the time required for changeover for different container formats.

The ATM technical team selected the WITTMANN label magazine design based on its simplicity which enables easy and quick changeovers. A change of the label format can be performed easily which is a real advantage for 24/7 production.

ATM’s benefits

ATM d.o.o. liked the user-friendly features and flexibility of the WITTMANN TeachBox. “It’s a real advantage to train our maintenance team using such a user-friendly learning program and to ensure each technician feels comfortable when making adjustments. With the simple and clear programming our technicians can explore new parameters to optimize the process very quickly. During the start-up phase we experienced complete confidence of our technical team and immediately recognized possible cycle improvements. It’s really encouraging to see how quick the technicians are at adapting the process and we are confident in achieving further improvement to our process. The complete start-up of the 3 robots was on schedule with the local PRIMEX representative and we are very satisfied with the performance. The short cycle time has exceeded all our expectations and we will work with the specific mold characteristics to further reduce cycle time,” says Dragan Djordjevic.

Denis Metral is Packaging Product Area Manager at WITTMANN FRANCE SA in Seyssinet-Pariset.

The new exten- 

sion at ATM d.o.o. brings the total facility to 12,000 square meters.
Installation of Central Systems: Perfect Planning Avoids Downtime

Recently, RICO Elastomere Projecting GmbH based in Wels (Upper Austria) started operation of a WITTMANN central material handling system. The installation was performed by WITTMANN and the operation start-up of the system was a masterpiece in terms of project planning and scheduling. Markus Wolfram

RICO is a well known manufacturer of molds for injection molding and of automation systems for the processing of elastomers. One of RICO’s specialties is the processing of liquid silicone (LSR) and solid silicone (HTV) including 2-component injection molding (for example LSR + thermoplastics). RICO is geared to short cycle times with approximately 100 qualified employees focused on maintaining the highest quality standards and not allowing any mistakes. This has made RICO so successful.

Project planning support

In 2008 RICO needed to increase their operation and storage capacity to fulfill order demand. WITTMANN was contacted for their general input on a new central material drying and handling system as well as to perform calculations on the system requirements. An active exchange of information very quickly arose from that initial discussion. The project was discussed from every point of view for which there were several different design possibilities. After having answered the final conceptual questions regarding the number of injection molding machines and their layout, WITTMANN received the order to implement the project.

Saving time through exact planning

At the beginning of the project the new building was not yet finished. Accordingly, the material conveying installation layout had to be proposed based on precise understanding of the building plans. Indeed, it was possible to develop some good suggestions for the piping layout and placement of the piping clamps during the completion phase of the building.

The extensive experience of the WITTMANN project planning team resulted in perfect planning reliability. Upon completion of the installation no drastic changes had to be made - neither in connection with the materials nor the costs. Thus, it became possible for RICO to establish their budget at an early stage of the project and maintain it throughout
the project. The installation of the piping and the sealing of the floor took place around the same time which resulted in considerable time savings.

As the processing machines had to be moved into the hall with the new conveying system, it was very important to minimize interruptions of current projects. Only once the entire installation was completed could the relocation of the processing machines occur.

As a result, the material conveying pipes were already prepared so the only thing left to do after positioning the injection molding machines was to connect the material tubes to the conveying units.

**Drying and conveying**

The system is equipped with controlled take-off adapters with efficient integrated purging. The drying system is designed to accept very different materials and throughputs and RICO also wanted the ability to expand it any time without difficulty. Future expansion of the coupling station was also considered at the time of design.

Currently, the different materials are taken out of four drying hoppers and conveyed via the coupling station to the processing machines. The material is stored under the drying equipment and the blowers.

**The new WITTMANN FEEDMAX B**

The new WITTMANN FEEDMAX B central conveying units were used for this installation. The lids of these units are completely isolated from the vacuum valve. This provides the operator working on the device easy access without having to worry about unintended closing of the lid which is often caused by the tube coupling – for example, when removing the steel filter for cleaning. The slanted opening of the FEEDMAX B allows easy access to clean the vacuum line and material inlet without the use of tools. The construction of the stainless steel inlets makes it possible to mount the seals so that they are not in direct contact with the material flow in order to eliminate wear.

**Control and start-up**

RICO operators received training during the installation phase of the battery dryer, blowers and conveying units, to save time. Additional time savings came from pre-configuration of the WITTMANN M7.2 network control at WITTMANN Vienna before it was connected to the fully installed system at RICO.

The network control enables the operator to control the entire system from a single point – with the utmost user friendliness and convenience. The M7.2 control offers a number of different views of the process and of the hardware components: Material based representation from the material source to the processing machine, vacuum loader display for controlling the blowers, as well as views of the electrical system – to the point of showing every single electric connection. Maintenance can be performed without interrupting running machines using the changeover function for the system blowers. This function can also be displayed on the network control. Furthermore, the flexible configuration of the M7.2 network control allows for a quick, cost efficient expansion or even doubling of the system if necessary.

**Competence and reliability**

The first contact between RICO and WITTMANN was made in March 2008. After discussing the project very closely, the order was placed in December. The delivery of all the components took place with the arrival of the New Year and by the third week of 2009 all the piping was complete.

The new system start-up took place at the beginning of February 2009. Once again WITTMANN proved their competence and advanced project management capabilities in this collaboration with RICO. At the same time, RICO’s principles of high speed, highest quality and flawless operation were achieved.